

Impact of integrating Content and Language Integrated Learning (CLIL) for Sri Lankan ESL students at tertiary level (With special reference to reading skills)

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Abstract

This study examines the impact of implementation of Content and Language Integrated Learning for Sri Lankan ESL students at tertiary level with special reference to reading skills. Two hypotheses were identified; CLIL group performs better than ordinary ESL group in terms of reading skills and application of CLIL methods in reading comprehension at tertiary level increases students' ability to use reading skills strategies. The sample consists of two groups: experimental and controlled and they are given a pre-test. After weeks of teaching, the groups are exposed to a post test. Metacognitive Awareness of Reading Strategies Inventory by Mokhtari and Reichard (2002) is employed to examine the use of comprehension strategies by students. The findings are analyzed through SPSS. The research findings show the degree of improvement in reading skills of the sample and their metacognitive awareness after being exposed to CLIL. The study further provides factors to be investigated in future research in order to enhance English language competency of ESL students in Sri Lankan Universities.

Key words: ESL, CLIL, Reading Skills, Metacognitive Awareness

Background

Keppetigoda and Chandradasaⁱ (2015) highlighted that the theoretical framework of bilingual education is the Content and Language Integrated Learning (CLIL), a new approach in language education as students learn both target language and content in target language (Crossⁱⁱ, 2014). However, it is necessary to highlight that students are exposed to education totally in an environment where L2 (English) is used after their learning in monolingual stream in L1 (in Sri

Lankan context, Sinhala and Tamil) for about 13 or 11 years when schooling. Yet, only a few subjects are taught in L2 at schools. To address this issue, the universities conduct compulsory ESL courses for the first year students. Sri Lanka Institute of Information Technology (SLIIT) too conducts an ESL course which needs a revision of the existing syllabus and as a solution the researcher introduces CLIL method. Thus, drawing the sample from the SLIIT, this study examines the impact of implementation of Content and Language Integrated Learning for Sri Lankan ESL students at the tertiary level.

As Asoka G.H.ⁱⁱⁱ (2011) highlights, 'English medium education' does not easily produce graduates with the required language proficiency. He further shows that the students struggle to provide answers for a mathematical problem in written form which implies the need for enhancing their Cognitive Academic Language Proficiency Skills (CALPS). It is visible in the university system that the subjects such as arts, history are taught in Sinhala Medium while science, commerce and mathematics subjects are taught almost in English medium. There is a clear gap between these streams. However as Gnanaseelan, J.^{iv} (2001) mentions in his newspaper article on Bilingual Sri Lankan Universities, English is used in his research studies as it has become a must in almost every discipline. Further he says that it is of an applied nature and it involves the close examination of background, needs, problems, and texts that the students have to grapple with in reading, writing, speaking, and listening in subject matters of the degree programs. Considering these factors it can be highlighted that the four skills of language learning of the students have to be improved through proper delivery of lectures.

Content and Language Integrated Learning (CLIL)

Content and language integrated learning makes a link between language learning and content development. As students, they learn both the content in target language and the target language. Previously there have been many teaching methods utilized to teach English to non-native speakers. According to Chang^v (2011), the grammar-translation method was used to let learners acquire reading knowledge of foreign languages by studying a grammar and applying this knowledge to the interpretation of texts with the use of a dictionary. In the Direct Method, the learning is entirely done in the target language. In eclecticism, the teacher uses a variety of methodologies and approaches, choosing techniques from each method that they consider effective

and applying them according to the learning context and objectives (Rodgers^{vi}, 2014) and only the selected strategies in the methods are applied according to the situation. However, based on Noam Chomsky's theories, the Communicative Approach emphasizes the ability to communicate the message in terms of its meaning, instead of concentrating exclusively on grammatical or phonological perfection. Therefore, the understanding of the second language is evaluated in terms of how much the learners have developed their communicative abilities and competencies.

In addition, Richards and Rodgers^{vii} (2001) highlight Task – Based Language Learning (TBL) as an approach based on the use of tasks as the core unit of planning and instruction in language teaching. As they highlight tasks are believed to foster a process of negotiation, modification, rephrasing and experimentation that are at the heart of second language learning.

This research is woven around the concept of CLIL prevailing nowadays which came into practice after TBL. Marsh (2010) (as cited in Costales and Martínez, 2014) says that Content and Language Learning (CLIL) which was first started in Europe is 'a dual-focused educational approach and it is aimed at enhancing the value of European linguistic diversity and improving the second language competence of students at the primary, secondary and tertiary level (Coleman, 2006 and Marsh, 2005; as cited in Costales and Martínez^{viii}, 2014).

Zarobe^{ix} (2007) (as cited in Keppetigodage, Chandradasa, *ibid*) highlights that CLIL is an approach to foreign language learning that requires the use of a foreign language to practice content. González and Alvira^x (2014) say that CLIL approach has arisen as an innovative way to develop foreign language skills and also to develop competences in contents. This approach focuses on the teaching and learning process of a second language as well as contents that are taught in a language different to the native one. They describe CLIL's pillars (Coyle's 4C Model^{xi}, 2010), content (such as subject matter, themes, cross curricular approaches) and focuses on the interrelationship between content (subject matter), communication (language), cognition (thinking) and culture (awareness of self and 'otherness') to build on the synergies of integrating learning (content and cognition) and language learning (communication and cultures) and the teacher has to establish specific goal for each aspect in 4C.

Reading Skills

Wolff^{xii}, 2005 has considered promoting reading comprehension and focusing on writing highly important in CLIL methodology. As Zarobe^{xiii} (2007) (as cited in Keppetigodage D, Chandradasa, *ibid*) says CLIL is an approach to foreign language learning and it requires the use of a foreign language to practice content. Thus considering the above research, it is clear that even though the content is taught in L2, the proper usage of L2 is needed to be learnt. Addressing this aspect, Pengnate^{xiv} (2013) investigated in depths of business students' English skills in listening, reading, speaking and writing. Pengnate used a sample of 30 from Thai-Nichi Institute of Technology, Bangkok, Thailand and gathered data through an ethnographic interview and observation. According to above research implementing content and language integrated learning to the curriculum helps the students to improve their linguistics skills. Yet Pengnate says that there are problems with listening and speaking as foreign teachers were teaching them. The students found spelling errors in writing and when reading skills are considered, the student could not comprehend long reading passages and failed in the reading section.

Reading is a key skill to be developed in order to gain good proficiency of L2. As Grabe^{xv} (2009) says, while not every component skill and knowledge base can receive equal amounts of attention, one approach to build a coherent and effective reading curriculum would be to combine an emphasis on content learning as well as language learning (and language skill use), often labeled as content-based instruction. Grabe (*ibid*) in the article: key issues in L2 reading, discusses the nature of reading abilities, particular in academic contexts, and identifies major skills and knowledge bases needed for L2 reading comprehension. The research claims that the method of instruction has to be changed and, if content and language learning is developed appropriately, it provides opportunities for the improvements of key areas in L2 Reading Development.

Hellekjær^{xvi} (1996) highlights in his research on academic reading proficiency at the university level that EFL instruction at upper-secondary schools fails to develop the academic English reading proficiency needed for higher education. Research findings show that 30% of the sample had serious difficulties reading English, while an additional 44% found it more difficult than reading in their first language. As Hellekjær (*ibid*) shows CLIL teaching forces students to develop their reading skills. Thus, if they read a text the same way the read a text in their English-subject

they will get stuck. In other words, CLIL opens up for teaching students reading and word-handling strategies, and for the students using such strategies to be able to cope with a text (Skogen M.^{xvii}, 2013). Skogen (2013) argues that CLIL teaching can strengthen students' reading, depending on quality of instruction and amount of English use.

Metacognitive Awareness Strategy

According to National Institute of Child Health and Human Development (2000) comprehension is the reason for reading. Further the report highlights that the vocabulary plays a significant role in comprehension. However, the main deviation from the traditional method of teaching and enhancing reading skills is that, through CLIL, the texts from the particular discipline of the students are utilized. As Dhanapala^{xviii} (2010) explains in her research, activation of prior knowledge, self-questioning, comprehension monitoring, inferring, predicting and so forth are considered higher level language skills and they are a main requirement for better comprehension. It helps to understand the readers' explicit and conscious use of reading strategies.

Dhanapala (2010, *ibid*) says that in the Sri Lankan context, reading is one of the skills emphasized in General Language Courses. She conducted her research considering metacognitive awareness of reading strategies used by students at different levels of reading comprehension. Analyzing data gathered from 199 participants in four universities of Sri Lanka through a reading comprehension test which included 40 multiple choice questions, metacognitive strategy questionnaire and a background questionnaire, Dhanapala highlighted that there is a positive linear relationship between Sri Lankan university students' text comprehension levels and their metacognitive awareness of reading strategies. The intermediate and low level readers lack lower-level processes such as vocabulary, grammar and syntactic knowledge. Further the research suggests that reading instruction should also include discourse structure awareness among learners for more effective comprehension such as to recognize the underlying text structure of texts and signal words that can help them focus attention on key concepts and relationships, and predict what is to come. However this research too focuses only on metacognitive awareness in L2 reading when integrating CLIL.

Replacing traditional teaching and learning in the ESL classroom with CLIL methodologies that teach English based on their content has facilitated the improvement of metacognition as well.

Therefore, in this research, the effects of utilization of CLIL are further analyzed through the investigation on metacognitive awareness of students as well. As I have discussed above ‘reading is understood as a more complex process than simply decoding the written words in a text’ (Hellekjær, *ibid*). Hellekjær highlights in his research that academic reading in L2 requires proficiency in general and vocabulary knowledge in particular. This can be developed through a proper utilization of ESL reading skills and teaching methods. According to literature presented, CLIL is a strategy that enhances reading skills of an ESL student. Since most of the courses offered by the university are conducted in English medium it is needed to see to what extent the students have gained proficiency in English.

Significance of the research

Since Sri Lanka is a country where bilingual education prevails, research on CLIL as a new approach that enhances performances of students is an interesting area to be examined. There is much research on Sri Lankan bilingual education and only a few of them are on integration of CLIL in the secondary level. Yet, there is a little research done on tertiary level education with CLIL. Wijayadharmadasa^{xix} (2011) has discussed issues that were encountered with the introduction of Content and Language Integrated Learning (CLIL) to English for Medicine programs in the Faculty of Medicine, University of Colombo. She understood that there should be a proper balance between content and ESL. Thus, I realized that there is still a dearth of research to address more on the state of tertiary level students in terms of CLIL and ESL with reference to reading skills and metacognitive awareness as reading skills are essential in performing well in their academics.

It noticeable that no research has been conducted yet in the context of the Faculty of Computing of Sri Lanka Institute of Information Technology, Malabe, Sri Lanka on ESL reading skills and contribution on metacognitive awareness in CLIL context. The undergraduates are offered the first year English language course, and their improvement in all four skills is assessed at the mid and the final examinations and through an individual speaking assessment and a presentation. Yet an in-depth research on the development of each skill has not yet been carried out. Further this is considered the high time to revise the existing ESL curriculum of the first year module of the

institution. Therefore it was a motivating factor for me and as a solution I introduced CLIL learning/teaching setting drawing my sample from this institution.

Methodology

The sample is drawn from first year students (No. 141) of the Faculty of Computing who follow the English Language Skills - I module (EL 120) in the Sri Lanka Institute of Information Technology, Malabe, Sri Lanka. Lectures for the two same ability groups are being conducted simultaneously by the respective facilitator at the given time slots.

One group was exposed to CLIL methods and it is called the experimental group (E) and the group was exposed to the existing ESL teaching methods. It is called the controlled group (C). First both the groups were given a pre-test which consisted of a CLIL Reading Comprehension. After weeks of teaching both the groups are given a CLIL Reading Comprehension Test.

The students were taught the same learning aspects such as gap filling, to provide short answers, true/false/not given questions, and underline the topic. Only the content/text was different i.e. the students in the controlled group were taught using existing text book which consisted of traditional comprehension passages in general theme such as stories and the experimental group was taught using texts drawn from their own disciplines such as Information Technology.

Hypotheses

H₀ - CLIL group performs better than normal ESL group in terms of reading skills.

H₁ - Application of CLIL methods in reading comprehension at tertiary level increases students' metacognitive awareness towards reading skills.

Instruments

IELTS General Reading test is selected as the reading comprehension test to be given to the students. According to the IELTS official web page^{xx} IELTS stands for the International English language Testing System and this test is in four sections namely, writing, reading, speaking and listening. It is said that IELTS is 'the world's most popular English language proficiency test for

higher education and global migration’. This adopts only one reading module from the Academic Training Test.

Reading comprehension test –

There are MCQs which include gap filling, to provide short answers, true/false/not given questions, underline the topic, underline the message, to justify the answers and understand contextual meaning.

Reading skills questionnaire –

This is a semi Metacognitive Awareness of Reading Strategies Inventory (MARSII) by Mokhtari and Reichard (2002^{xxi}) utilized in order to seek in depth information regarding the progress of reading skills. The MARSII comprises 30 statements which assess Global Reading Strategies, Problem Solving Strategies, and Support Strategies. Each question is answered using a five-point scale:

‘1’ means I never or almost never do this

‘2’ means I do this only occasionally

‘3’ means I do this sometimes (about 50% of the time)

‘4’ means I usually do this

‘5’ means I always or almost always do that.

The data collected is analyzed using SPSS. Graphs and statistical tables are used to analyze data and some are presented in tables in detail. Both the scores from the pre-test and post-test are compared and contrasted to see whether there is any progress.

Findings and Discussion

This research shows how there can be a progress in the reading skills in the selected sample when CLIL methods are implemented. Moreover, this research identifies key factors that can be investigated in further research in order to enhance English language competency of ESL students in Sri Lankan Universities.

As explained in the methodology, the controlled group is taught using the existing traditional materials while the experimental group is taught using the CLIL methodology which integrated both students’ respective discipline and L2.

First, the scores of the pre-test conducted for the two sample groups; controlled and experimental are analyzed to confirm further that the students are of the same ability level. Because, the students who are in mixed ability levels would show different outcomes that result in discrepancies in the post-test data. This is usually the best way to evaluate the effectiveness of the implementation of a new method as the progress of the students are clearly noticed if they are in the same ability level.

The researcher brought forward two hypotheses;

1. The null hypothesis – H_0 : There is no difference in mean pre- and post-marks

$$H_0: \mu_1 = \mu_2$$

2. The 'alternative hypothesis' – H_1 : There is a difference in mean pre- and post-marks

$$H_1: \mu_1 \neq \mu_2$$

A paired sample t-test is conducted to identify the relationship between the mean values of the pre-test of both the groups. The significant level for this analysis is set at 5% and the data were generated as follows.

Table 1 - Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_Test_C	59.9062	145	6.06869	.50398
	Pre_Test_E	59.6338	145	6.13777	.50971

Table 2 - Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	5% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre_Test_C - Pre_Test_E	.27241	.76171	.06326	.26844	.27639	4.306	144	.000

As per the data above, the calculated value is less than the table value, thus it is accepted the null hypothesis. Thus it can be confirmed that there is no significant mean difference between the two paired samples. Therefore, $H_0: \mu_1 = \mu_2$. The mean value of the pre-test is 59.90 and the mean

value of the post-test is 59.63. This shows a slight difference and the variance of the two mean values can be considered almost equal. This further ensures that both groups are from the same learning/teaching setting at the beginning and then the experimental group experiences the new treatment with CLIL and the controlled group experiences the same existing learning teaching scenario and the outcome is investigated in the next section.

Next, the researcher administered the post-test to students in both controlled group and experimental group after they were taught with the existing syllabus and with CLIL methodologies respectively to assess the amount of change on the value of the dependent variable from the pre-test to the post-test for each group separately.

Table 3 - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Pre_Test_C	145	49.80	70.90	59.9062	6.06869	36.829	.123	.201
Post_Test_C	145	23.00	67.00	54.2069	7.99113	63.858	-.835	.201
Pre_Test_E	145	49.70	70.90	59.6338	6.13777	37.672	.203	.201
Post_Test_E	145	55.00	87.00	69.6159	7.07830	50.102	.157	.201
Valid N (listwise)	145							

The descriptive statistics of the pre-tests and post-tests of the both groups are presented in Table 3. The difference between the mean values of the pre-test and the post-test of the controlled group which was exposed to the traditional and existing teaching methods show a considerable difference. The mean of the pre-test was 59.9062 and it has dropped to 54.2069 which is noteworthy. Simply, the mean has been decreased by 5 points than that of the pre-test. It is clear that the controlled group has not performed well at the post test as the existing teaching method has not facilitated the expected competency level of the students.

When compared the means of the post-test and pre-test of the experimental group, they show a huge difference as the mean of the post-test is greater than the mean of the pre-test. The mean of

the pre-test is 59.6338 and it has significantly increased to 69.6159 at the post-test which marks almost a 10 point distinction. This shows a considerable progress of the students' reading skills.

Thus it is clear that at the initial stage (pre-test), students in both groups were in the same level as the average mark they obtained was 59. Yet when the CLIL methodologies are employed in the lessons of the experimental group, the students' scores have been greatly advanced. The majority of the students in the controlled group scored 54 which is considerably a less mark than they were at the initial stage. The students in the experimental group have scored 69 which is significantly a higher mark than the initial stage. This shows that the students in the experimental group have performed better than the students in the controlled group.

As per the standard deviation of the data gathered from the sample, at the initial step, the spread or the variance of the data set is similar which ranges from 49 to 70 marks for both the groups. After teaching the students in the controlled group with the existing teaching methods, it was observed that the spread of the minimum and maximum marks are larger than that of the experimental group. According to post test of the controlled group, the marks range from 23 to 67 whereas the marks obtained by the students of the experimental group range from 55 to 87. Thus it is clear that the controlled group shows a larger standard deviation than that of the experimental group making it more spread out or larger, thus, the results are more negative. This is clearly elaborated in Table 4.

As per the standard deviation presented in Table 4, the controlled group marked 7.99113 whereas the experimental group marked 7.07830. Thus, when considering the more positive standard deviation, it is clear that the experimental group has performed better than the controlled group.

Table 4 - The standard deviation of the two samples

	Minimum	Maximum	Std. Deviation
Post_Test_C	23.00	67.00	7.99113
Post_Test_E	55.00	87.00	7.07830

Table 5 - Statistics

	Post_Test_C	Post_Test_E
N	Valid	145
	Missing	0
Mean	54.2069	69.6159
Median	55.0000	70.0000
Skewness	-.835	.157
Std. Error of Skewness	.201	.201

Further, when considering the skewness of the data set presented above, the peak of the data of the controlled group is toward the right and the left tail is longer, and that marks the distribution **skewed left or negatively skewed**. In contrast, the data of the experimental group is spread out in a more positive way comprising a positive distribution of data.

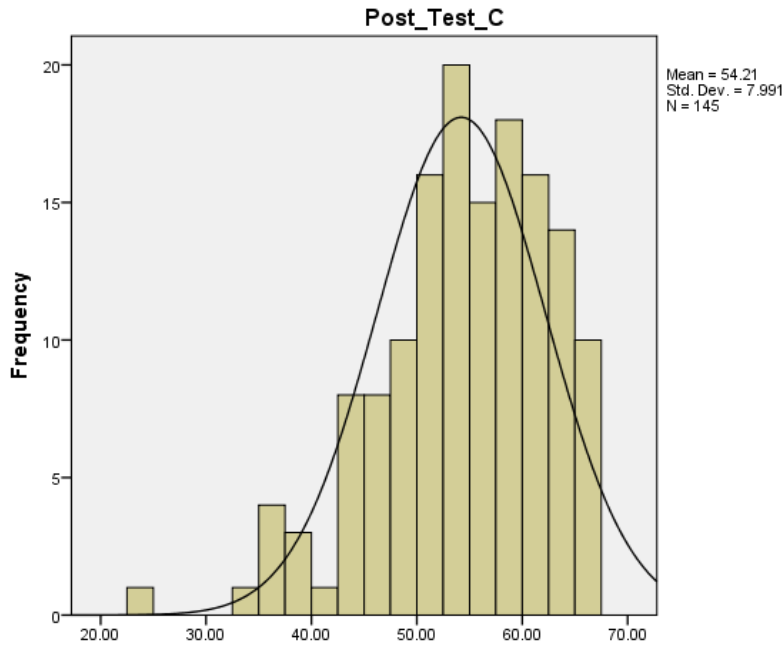


Figure 1

Post test scores of the Controlled group are left skewed making it a negative distribution.

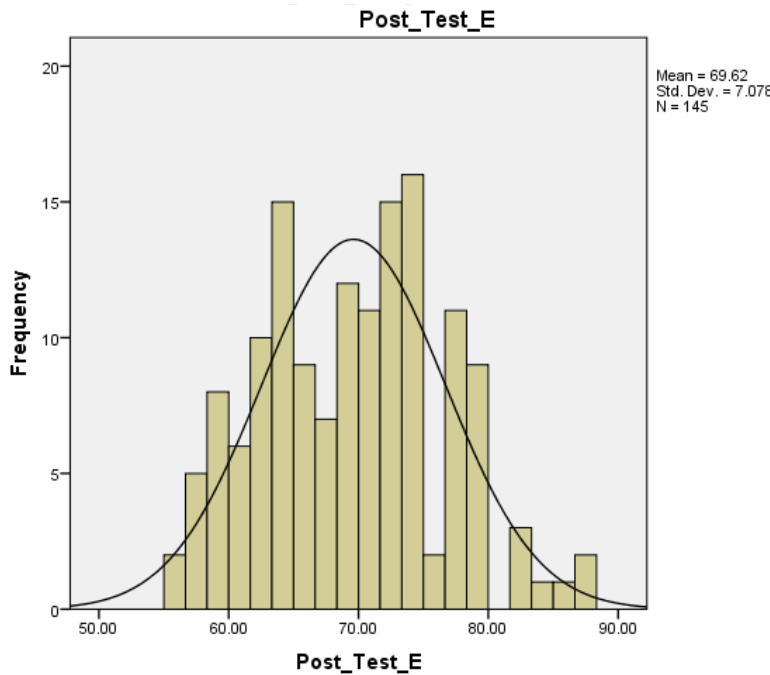


Figure 2

Here, the post test scores by the experimental group are presented. As per the graph, the data spread in a more positive way.

Thus, it is clear that the students of the experimental group have scored better than the students in the controlled group after CLIL methods are integrated. Therefore it can be proved that the use of CLIL methodologies have improved students' reading skills.

Further, in order to seek in depth view of the students who were exposed to CLIL methods when learning reading skills, the following data is gathered on students' metacognitive awareness of reading strategies. As it is mentioned in the methodology, 'Metacognitive Awareness of Reading Strategies Inventory (MARSI) Version 1.0' designed by Kouider Mokhtari and Carla Reichard in 2002 was utilized to seek students' attitudes towards gaining reading skills after being exposed to ESL learning and teaching with CLIL methods.

The 30 statements of this inventory are divided into three types of reading strategies: global, problem-solving, and support. According to Mokhtari and Reichard (2002, *ibid*), the global reading strategies include skimming the text for characteristics, activating prior knowledge, or setting a purpose for the reading activity. Pausing to reflect on reading, paying closer attention, or reading aloud is identified by the Problem-solving strategies. Support strategies consist of taking notes while reading, paraphrasing information, and self-questioning.

The descriptive for individual questions of the MARSI are presented in Table 6 below. Each question is listed in the following table with mean, mode and sum.

Table 6 – Metacognitive Awareness of Reading Strategies Inventory (MARSI)

- Analysis

Type	Strategies	Mean	Mode	Sum	Usage
GLOB	1. I have a purpose in mind when I read.	3.52	3	116	H
SUP	2. I take notes while reading to help me understand what I read.	2.97	3	98	M
GLOB	3. I think about what I know to help me understand what I read.	3.58	4	118	H
GLOB	4. I preview the text to see what it's about before reading it.	2.97	2	98	M
SUP	5. When text becomes difficult, I read aloud to help me understand what I read.	2.64	3	87	M
SUP	6. I summarize what I read to reflect on important information in the text.	3.03	2	100	M
GLOB	7. I think about whether the content of the text fits my reading purpose.	3.03	3	100	M
PROB	8. I read slowly but carefully to be sure I understand what I'm reading.	4.12	5	136	H
SUP	9. I discuss what I read with others to check my understanding.	2.76	2	91	M
GLOB	10. I skim the text first by noting characteristics like length and organization.	2.27	3	72	L
PROB	11. I try to get back on track when I lose concentration.	3.91	5	129	H
SUP	12. I underline or circle information in the text to help me remember it.	3.06	3	101	M
PROB	13. I adjust my reading speed according to what I'm reading.	3.88	5	128	H

GLOB	14. I decide what to read closely and what to ignore.	3.45	4	114	M
SUP	15. I use reference materials such as dictionaries to help me understand what I read.	3.24	3	107	M
PROB	16. When text becomes difficult, I pay closer attention to what I'm reading.	3.88	5	128	H
GLOB	17. I use tables, figures, and pictures in text to increase my understanding.	3.24	4	107	M
PROB	18. I stop from time to time and think about what I'm reading.	3.06	3	101	M
GLOB	19. I use context clues to help me better understand what I'm reading.	3.15	3	104	M
SUP	20. I paraphrase (restate ideas in my own words) to better understand what I read.	3.73	4	123	H
PROB	21. I try to picture or visualize information to help remember what I read.	3.76	5	124	H
GLOB	22. I use typographical aids like bold face and italics to identify key information.	2.76	2 ^a	91	M
GLOB	23. I critically analyze and evaluate the information presented in the text.	3.12	3 ^a	103	M
SUP	24. I go back and forth in the text to find relationships among ideas in it.	3.48	4	115	M
GLOB	25. I check my understanding when I come across conflicting information.	3.39	4	112	M
GLOB	26. I try to guess what the material is about when I read.	3.79	4	125	H
PROB	27. When text becomes difficult, I re-read to increase my understanding.	4.27	5	141	H
SUP	28. I ask myself questions I like to have answered in the text.	3.12	4	103	M
GLOB	29. I check to see if my guesses about the text are right or wrong.	3.61	4	119	H
PROB	30. I try to guess the meaning of unknown words or phrases.	3.7	4	122	H

According to Table 6, majority has selected the statements: 'I read slowly but carefully to be sure I understand what I'm reading' (PROB – Mean – 4.12) and 'when text becomes difficult, I re-read to increase my understanding' (PROB – Mean – 4.27) as the mostly considered strategies. The mode of those statements is 5 which indicates "I **always or almost always** do this". 12 out of 30 strategies in the list are rated above 3.5 or higher making them the highly utilized strategies. This includes 7 out of 8 Problem solving strategies, 4 out of 13 Global Reading Strategies and 1 out of 9 Support Reading Strategies. As per the list of strategies above, most of the students are aware of the problem solving strategies. The least known strategy is 'I skim the text first by noting characteristics like length and organization' (GLOB) which has a mean of 2.27. This is only strategy that falls under the low usage category while all the other 29 strategies are of high-usage and medium-usage categories.

Table 7 - Scored data analysis

Key: Metacognitive Awareness of Reading Strategies Inventory

GLOB _ Global Reading Strategies

PROB _ Problem-Solving Strategies

SUP _ Support Reading Strategies

As per Table 7, the highly utilized strategies are Problem solving strategies as it marks the highest mean, 3.7. Global Reading Strategies and Support Reading Strategies comprise the mean values, 3.12 and 3.02 respectively. There is only a slight difference between the mean values of students' awareness on those two reading strategies. It is noticeable that none of the subscales fall under the category of low-usage strategies. Overall mean of the inventory is 3.86. It highlights that the majority of the students utilize and are aware of the metacognitive reading strategies which are an integral in the CLIL teaching/learning setting.

As per the research done by Mokhtari and Reichard (2002), students' proficiency in English, the type of materials utilized and the purpose for reading can affect the usage of reading strategies. A student can take the maximum advantage of these strategies if they are exposed to such proper ESL academic contexts and ESL reading environment. This setting is created in the context of CLIL teaching and learning. As per the two hypotheses drawn, the hypothesis; H₁ - Application of CLIL methods in reading comprehension at tertiary level increases students' metacognitive

Strategy Subscale	Score	Mean	Averages
GLOB	1382	3.126697	Medium
PROB	1009	3.709559	High
SUP	925	3.022876	Medium
Overall Score	3316	3.86666667	High

awareness towards reading skills, and H₀ - CLIL group performs better than normal ESL group in terms of reading skills are accepted as the students in the experimental group performed significantly better than the students in the controlled group.

Conclusion and Recommendations

CLIL is a new approach that helps ESL teaching and learning more effective as it deals with both the disciplines and target language. Here, the ESL lessons are designed to teach English based on the students' disciplines. As per the sample of this research, the content of the reading lessons was Information Technology/ Software Engineering (SE) and the ESL lesson reading comprehension activities were designed based on IT and SE contexts. In addition, the lessons were consisted of cognition enhancing strategies and interaction in the learning context which improve

communication. The students in the controlled group were exposed to the traditional material which was of less focus on the technical content and insufficient attention on metacognitive reading strategies.

According to findings of the research, it is clear that the students in the experimental group have performed better than the students in the controlled group. At the pre-test, both groups scored 59, yet, at the post-test, it is considerable that the controlled group scored 54 while the experimental group scored 69. After being exposed to the CLIL teaching and learning, the students have acquired crucial reading skills which resulted in their high scores at the post test. It is evident that the students in the experimental group were exposed to technical contexts of their relevant disciplines and utilized L2 throughout instructions and speaking which made them improve their technical vocabulary, make use of more opportunities that facilitated them to use the target language and therefore have an advanced performance in reading comprehension.

The exercises on gap filling, providing short answers, true/false/not given questions, underline the topic, underline the message, justifying the answers and understanding contextual meaning in the CLIL reading comprehension worksheets have improved students' metacognitive awareness and better reading skills. Overall mean of the inventory is 3.8 marking that the metacognitive awareness of the students in CLIL has been improved and also in a high level. As per the findings, it has enhanced Problem-solving strategies of students most comprising the mean score of 3.7. When it compared the mean values of both pre-test and post-test, the controlled group has demonstrated low comprehension level than those who are in the experimental level at the post-test. Initially, the mean score of the students in the controlled group was 59 and it was decreased by 5 points making it 54. Yet the students in the experimental group who were in the same level at the pre-test have improved their score by 10 points making it 69 marks. Thus it is clear that when the students are constantly exposed to ESL learning and teaching which are based on their own disciplines, it enhances language competency of the students and thereby it helps them to perform in their technical subjects as well.

Therefore, it can be recommended that utilizing CLIL teaching and learning methods for ESL students makes positive impacts on the students' L2 learning. Further, it is effective to utilize CLIL

methodologies to improve reading skills of students as they enhance students' metacognitive learning strategies which further help students to perform better in their relevant disciplines as well. This study can be further extended to investigate qualitative feedback drawn from the facilitators and students in order to investigate the effectiveness of using CLIL methods in other language skills such as listening, speaking and writing as well.

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